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NATIONAL COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION

REVIEW PROCESS RELATED TO GREENHOUSE GAS INVENTORIES

Elements of a review process

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. At its ninth session, the Subsidiary Body for Scientific and Technological Advice (SBSTA) requested the secretariat to prepare an initial report on elements of a review process related to greenhouse gas (GHG) inventories, including in-depth reviews, based on the issues identified at two relevant workshops and submissions from Parties, for consideration at its tenth session, with a view to forwarding relevant information to the Subsidiary Body for Implementation (SBI). The SBSTA also invited Parties to submit information related to elements of a review process by 1 March 1999 (FCCC/SBSTA/1998/9, para. 51 (f)).

2. By its decision 11/CP.4, the Conference of the Parties (COP), at its fourth session, requested its subsidiary bodies to consider the scope, modalities and options for the review process, including the review of annual inventory information, and the need for more thorough consideration of national circumstances and reporting requirements under the Kyoto Protocol, with a view to adopting revised guidelines for the review process at the sixth session of the COP (FCCC/CP/1998/16/Add.1).

3. At its ninth session, the SBI began its discussion on how the future in-depth review process could be conducted, reported and considered on the basis of document FCCC/CP/1998/4. The SBI invited Parties to submit, by 1 March 1999, their views on the scope and the modalities of the review process for the third national communications, including in-depth reviews, in the context of the Kyoto Protocol. The SBI requested the secretariat to prepare, for consideration at its tenth session, a document containing suggestions for the future review process, taking into account the views of Parties and the relevant requirements of the Kyoto Protocol (FCCC/SBI/1998/7, para. 21 (d)).

4. The SBSTA, at its ninth session, requested the secretariat to prepare a work programme on methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol for consideration at its tenth session (FCCC/SBSTA/1998/9, para. 51 (h)).

B. Scope of the note

5. The elements of the review process related to GHG inventories described in this note are proposed by the secretariat, drawing on technical advice received from an expert workshop held at Bonn, 9-11 December 1998, with the participation of 79 experts from the roster on methodologies and from relevant international organizations (FCCC/SBSTA/1999/INF.1), and on submissions from Parties (FCCC/SB/1999/MISC.4). It responds to the SBSTA request for an initial report on elements of a review process related to greenhouse gas inventories mentioned in paragraph 1. This note addresses only the technical aspects of reviewing GHG inventories. Other broader issues related to the future review process are discussed in document FCCC/SBI/1999/6. For this reason, it would be advisable to read these documents together.

C. Possible action by the SBSTA

6. The SBSTA may wish to consider the information in this note and:

(a) Provide guidance on the following elements of a UNFCCC review process:

(i) Initial checking of inventories and reporting on the status of submissions;
(ii) Annual synthesis and assessment reports;
(iii) Individual technical reviews of inventories and reports; and

(b) Request the secretariat to prepare guidelines for the technical review of GHG inventories submitted by Parties included in Annex I to the Convention (Annex I Parties), taking account of submissions from Parties and inputs from the Intergovernmental Panel on Climate Change (IPCC), for consideration at the eleventh session of the SBSTA and adoption by the COP at its fifth session.

7. The SBSTA may also wish to forward information to the SBI and invite it to consider the implementation aspects of a technical review process, including the timing of such review.

II. ELEMENTS OF A REVIEW PROCESS FOR GHG INVENTORIES

A. Background

Existing review practices

8. Some practices related to a technical review process are already in place under the Convention. The Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, referred to in this note as the IPCC Guidelines, encourage Parties to verify their inventories prior to submission and provide suggestions as to how Parties may do this. However, most Parties have not reported information on such practices.

9. The compilation and synthesis of Annex I Party national communications is prepared by the secretariat and this also involves some elements of technical review. Errors, omissions, inconsistencies and methodological problems are identified as part of this process, in relation to all or to individual Parties. This process is non-controversial as it does not challenge the information provided by Parties. Neither the quality of the inventory information nor the reliability of emission and removal estimates are assessed.

10. Also, the existing in-depth review process for Annex I Party national communications, created according to decision 2/CP.1, includes the review of key qualitative information and quantitative data, including GHG inventories. To date, the process has been useful in improving the quality of GHG inventories. However, the effectiveness of these reviews has been limited, due to the fact that only one inventory expert generally participates in each team, that inventory

discussions last one day at most, and that only limited preparatory work is done prior to reviews. In addition, the reviews aim to clarify methodological or reporting issues rather than check GHG inventories or assess the information provided by individual Parties.

Ongoing work related to the technical review of GHG inventories

11. Any improved technical review process begins with improved GHG inventories. To address this issue, the following activities have been undertaken:

(a) The secretariat has prepared draft guidelines for the preparation of national communications by Parties included in Annex I to the Convention (including part I of the reporting guidelines on inventories), referred to in this note as the UNFCCC reporting guidelines on inventories, based on views from Parties and discussions at two workshops attended by more than 100 experts (Bonn, 9-11 December 1998 and 17-19 March 1999) (see FCCC/SB/1999/1 and Add.1). It is expected that these guidelines, which may help to improve the reporting of GHG inventories, will be adopted by the COP at its fifth session;

(b) The IPCC Programme[1] is conducting work on uncertainties and good practices in inventory management. It is expected that the results of this work, which may provide a basis for improving the preparation, reporting and review of GHG inventories, will be available for consideration by the SBSTA at its twelfth session.

B. Proposed approach to review of GHG inventories

12. The goal of technical reviews of GHG inventories is to assist Parties in preparing the highest quality information necessary to fulfil their obligations under the Convention.

13. The elements of a technical review process for inventory information, as presented here, are based on the concept of a GHG inventory life cycle. This cycle begins with the *preparation* of inventory information, continues with its *reporting*, and ends when the technical *review* of the submitted inventory is completed. Elements of the technical review can be applied to stages of the life cycle before and after the submission of an inventory to the secretariat. Improvements made to inventory information as a result of the technical review process should be carried over into the preparation of the next inventory. Experience with the technical review process may lead to revisions being made in the future to the UNFCCC reporting guidelines on inventories.

14. The preparation, reporting and review of inventory information should be designed to

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[1] The IPCC Programme in this note refers to the Intergovernmental Panel on Climate Change (IPCC) - Organisation for Economic Co-operation and Development (OECD) - International Energy Agency (IEA) Programme on National Greenhouse Gas Inventories. By decision of the fourteenth Plenary of the IPCC, the functions of this programme will be assumed by the IPCC Task Force on Inventories, to be located in Japan, in 1999.

support each other. It is intended that the UNFCCC reporting guidelines on inventories, planned for adoption by the COP at its fifth session, will result in GHG inventories being reported in a manner that better facilitates their effective review. It is also intended that the review process will provide feedback that will be used for improving the quality of submitted inventory information and refining the IPCC methods for the preparation of GHG inventories, including any guidance on good practices which may be adopted by the COP.

15. The technical review of GHG inventories could also make use of verification practices already recommended in the IPCC Guidelines, such as the comparison of data with international statistics. These practices could also be expanded to, *inter alia*, cross-country comparisons of emission factors, comparisons with previous submissions or reconstruction of a given inventory. These elements could be valuable tools in assessing the reliability of GHG inventory estimates.

C. Elements of a review process

16. The elements of a technical review of GHG inventories may be split into those undertaken internally by the Party prior to the submission of the inventory and those undertaken externally as part of the review process under the UNFCCC after the inventory has been submitted. Each element could focus on a different aspect of the review and should complement and support the others. The elements of the process presented in this note are the following:

(a) Domestic review process (pre-submission); and

(b) UNFCCC review process (post-submission):

(i) Initial checks;
(ii) Synthesis and assessment of annual inventories; and
(iii) Individual technical reviews of inventories, including those by expert review teams.

Domestic review process

17. Domestic reviews could be undertaken internally by each Party as part of the preparation of GHG inventories prior to their submission to the secretariat. Each step of the preparation of the inventory could be checked for the accuracy of activity data, emission factors and other assumptions, the application of IPCC methods and good practices, the level of documentation included and the adequate estimation of uncertainty ranges on the basis of source/sink and gas.

18. Emission and removal estimates could also be compared with estimates from other sources to identify possible inconsistencies and errors. A useful basis for this quality assurance may be the comparison of current information with information from previous years, from other comparable countries or from alternative estimation methodologies (such as the reference approach for carbon dioxide emissions from fuel combustion). Possible departures from the

IPCC Guidelines or the UNFCCC reporting guidelines on inventories may be another suitable basis for review.

19. The domestic review process would be likely to be a self-governed set of actions, undertaken by government agencies or other organizations on their behalf. It could provide an opportunity for Parties to identify problems and make improvements to their inventories. Such reviews may assist Parties in improving the completeness, transparency, consistency, comparability and accuracy of their submissions, independent of any involvement on the part of other Parties or the secretariat. Such improvements, in addition to raising inventory quality, could enhance the effectiveness of subsequent elements of the review process.

20. It may be sufficient to encourage Parties to use domestic review practices and to provide relevant information to the secretariat with the aim of sharing their experience. It should be noted that some Parties already follow some such practices.

Initial checks (UNFCCC review process)

21. Submitted inventories could be subjected to initial checks by the secretariat when they are received. These checks could be based on a checklist and could include such information as the submission date, coverage of the inventory, and possible departures from the UNFCCC reporting guidelines on inventories and the IPCC Guidelines. Inventory information could be briefly compared with previous submissions to detect potential anomalies. Initial checks could form a first check for the completeness, consistency and transparency of GHG inventories. More in-depth assessments of inventory information would be left for subsequent review stages.

22. The secretariat could post a status report on the UNFCCC Web site to provide information to Parties as to the condition of submitted inventories. This assessment could be based on a checklist and could be compiled in an agreed tabular format. The secretariat could also seek clarification from Parties in relation to issues arising from the initial checks. A timetable could be developed for the secretariat to seek such clarification and for Parties to respond to the secretariat. The status report on the UNFCCC Web site could be updated at regular intervals as inventories and clarifications are received by the secretariat.

23. Such initial checks may help ensure that inventory information is of a minimum acceptable quality and may encourage the inclusion of sufficient information in inventories to enable subsequent elements of the UNFCCC review process to take place. The provision of inventory information by Parties in electronic form, using a common reporting format, would be vital in ensuring that the secretariat is able to prepare and update the status report in a timely manner.

Synthesis and assessment of annual inventories (UNFCCC review process)

24. The synthesis and assessment of annual inventories could be undertaken annually by the

secretariat. The purpose of such synthesis and assessment would be to provide an overview of common methodological issues across the inventories of Annex I Parties, including the technical consistency with UNFCCC reporting guidelines on inventories and the IPCC Guidelines. This could be made to complement the initial checking procedures described above, by focusing on the accuracy, transparency, comparability and consistency of the inventory information over time and among countries.

25. As part of this synthesis and assessment, activity data could be compared with data from international statistics and aggregate emission factors could be compared among countries.[2] The comparison of disaggregated emission factors with expected ranges given in the IPCC Guidelines might also be useful. Activity data, emission factors and final emission and removal estimates could also be compared with previous submissions in order to detect inconsistencies or the effect of individual factors in reported recalculations.[3]

26. A synthesis and assessment report could be prepared annually by the secretariat, with the assistance of inventory experts nominated by Parties. The involvement of such experts may facilitate information sharing and capacity building among Parties. This report could also be posted on the UNFCCC Web site.

27. This report could highlight different themes in different years at the request of the SBSTA, with the support of experts from the roster on methodological issues. For example, the synthesis and assessment report could evaluate comparisons of emission factors for a particular sector or problems identified in emissions or removals of a given GHG source/sink or category.

28. The synthesis and assessment report could include any inconsistencies, anomalies or unclearness identified in the course of its preparation. This information could form the basis of a list of questions and potential problems to be investigated further as part of the technical review of an individual Party's inventory. The synthesis and assessment report could also identify issues needing further consideration. For example, information on trends over time could be gathered as an indication of the progress being made by Parties in meeting Convention commitments. It could also help identify further methodological issues needing to be resolved.

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[2] There are two general options for providing comparisons of activity data and emission factors in synthesis and assessment reports. Firstly, activity data, aggregate emission factors and emission and removal estimates submitted by a Party could be presented alongside data from its previous submissions, submissions from other Parties, ranges contained in the IPCC Guidelines and data sets from other sources. This approach would facilitate the assessment of the Party's inventory by expert review teams or other interested parties. In principle, this approach would not involve large budgetary implications, as long as inventory information is provided by Parties electronically and using a common reporting format. Secondly, the secretariat could undertake such comparisons itself as part of the preparation of annual synthesis and assessment reports. This option may lead to large budgetary implications for the secretariat because a thorough assessment would require significant human resources.

[3] Relevant information on data comparison is contained in document FCCC/TP/1999/2.

Individual technical reviews of inventories by expert review teams (UNFCCC review process)

29. Individual technical reviews of specific Parties' inventories could be conducted by sending inventory material to experts, through a series of meetings in a single location and through visits to countries involving experts. Indeed, such individual technical reviews may be the only way to assess all inventory information submitted by each Party and, if appropriate, partially reconstruct estimates of emissions and removals. From a technical point of view, direct access to relevant officials and all stored inventory information would improve the capacity to clarify issues or reconstruct estimates. Such reviews may be viewed as a more focused and rigorous version of the review of inventories included in the current in-depth reviews of national communications. Individual technical reviews could be conducted once every two to three years.

30. The main purpose of the individual technical reviews would be to assess the quality of information on GHG emissions by sources and removals by sinks. This could include the assessment of national methods used and the corroboration of activity data and emission factors on the basis of information compiled in the course of the synthesis and assessment of annual inventories. It could clarify reasons for identified departures from the UNFCCC reporting guidelines on inventories and the IPCC Guidelines and, as appropriate, partially reconstruct estimates of emissions and removals. In doing so, priority might be given to those sources and sinks with significant emission impacts, rates of change or levels of uncertainty. The assessment of national systems used by Parties and adherence to any good practices agreed upon by the COP could be an important aspect of the review in the future.

31. These reviews could also provide feedback to Parties to help them further improve their institutional capacity for preparing and reporting GHG inventories. Reviews could also benefit the IPCC and the secretariat by providing inputs for developing methodologies and guidelines.

32. The expert teams could be drawn from the methodological roster, from the list of experts nominated for in-depth review teams and from relevant organizations such as the IPCC. Experts could be selected on the basis of their specific expertise in the main sectors of a particular Party's inventory and, to the extent possible, geographical balance. Ways to enhance the knowledge of the experts participating in the review teams might need to be considered. For example, the thorough preparation of expert review teams prior to country visits may be essential, perhaps involving a meeting of the team prior to any country visits. Attempts could be made at this stage to reconstruct parts of the inventory and to identify issues needing clarification.

33. The effectiveness of the individual technical reviews of national inventory information would depend considerably on a number of other factors, such as:

(a) The quality of the submitted information;

(b) The cooperation of each Party; and

(c) Well organized and archived inventory information.

34. Archived inventory information would be necessary to facilitate the timely clarification of inventory information as part of individual technical reviews and any reconstruction of submitted emission or removal estimates by review teams. The information would need to include disaggregated emission factors, activity data and full documentation about how these factors and data have been gathered and aggregated. It would need to include information from the base year to the year of the latest inventory submission, complete with any recalculations made. Archived inventory information would preferably be held at a single location.

35. Guidelines would be needed for the technical review of inventories. The purpose of such guidelines would be to ensure that individual technical reviews are consistent between Parties and effective in providing a thorough and comprehensive technical assessment of inventories.

36. The product of an individual technical review would be an expert report. Expert reports could explicitly highlight areas of adherence to the UNFCCC reporting guidelines on inventories and areas of inventories needing improvement. The process of preparing export reports could include an opportunity for Parties to comment.

37. Expert reports could be electronically posted on the UNFCCC Web site and on Web sites of reviewed Parties. The public availability of these reports may be beneficial to Parties as it may facilitate the sharing of experience and capacity building. The availability of such reports on the Web may also assist in preparing expert review teams prior to individual technical reviews.

Operational implications

38. For the period 2000-2001, individual technical reviews of inventories could proceed relatively free of conflict with the broader in-depth reviews of national communications, as few of the latter are anticipated in this period. Following this period, the timing of individual technical reviews of inventories would need to take account of the schedule of in-depth reviews of national communications.

39. The proposed approach to the review of inventories could begin in 2000, assuming the availability of resources for the next biennium. The resources sought in the programme budget for the period 2000-2001 would enable the secretariat to test the proposed approach by redeploying some of the staff involved in the in-depth reviews. The resources in the programme budget are sufficient to perform initial checks, prepare and post status reports on the UNFCCC Web site, prepare synthesis and assessment reports, and undertake a limited number (15-20) of individual technical reviews. The programme budget does not contain resources for the preparation of experts (see paragraph 32).

40. Should this testing period (2000-2001) demonstrate the usefulness of the proposed technical review process, a full-scale UNFCCC review process on inventories would be included in the 2002-2003 programme budget. As in-depth reviews of national communications will also

be underway in that period, there would need to be a new allocation for the purpose of undertaking the UNFCCC review process on inventories. It would only be possible, however, to determine precise resource implications once the testing period is under way.

Links to the Kyoto Protocol

41. The reports resulting from the different elements of an enhanced review process could provide a foundation for the development of similar reports under the Kyoto Protocol. For example, the synthesis and assessment report could be the forerunner of an annual compilation and accounting of GHG inventories and assigned amounts under Article 7.1 of the Kyoto Protocol. Furthermore, the expert reports of individual technical reviews could serve as forerunners of important components of reports to assess the implementation of the commitments of Parties under Article 7.3 of the Kyoto Protocol.

42. Early results of an enhanced technical review process would be useful for the development of guidelines and modalities under the Kyoto Protocol, particularly if they were based on inventory information submitted in accordance with the UNFCCC reporting guidelines on inventories, planned for adoption by the COP at its fifth session (see FCCC/SB/1999/1), and if these guidelines were applied to inventories for the year 1998, as submitted by 15 April 2000.

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